



SHILAP Revista de Lepidopterología

ISSN: 0300-5267

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Sociedad Hispano-Luso-Americana de
Lepidopterología
España

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SHILAP Revista de Lepidopterología, vol. 45, núm. 178, junio, 2017, pp. 207-211

Sociedad Hispano-Luso-Americana de Lepidopterología

Madrid, España

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Lepidoptera of White Sands National Monument, Otero County, New Mexico, USA 8. Description of the female of *Protopgyia whitesandsensis* Metzler & Forbes, 2009 (Lepidoptera: Noctuidae, Agrotini)

E. H. Metzler

Abstract

Protopgyia whitesandsensis Metzler & Forbes, 2009 was described from a series of 18 males. In March, 2010 a single female was captured and is described here. The female imago and genitalia are illustrated.

KEY WORDS: Lepidoptera, Noctuidae, Agrotini, *Protopgyia whitesandsensis*, female, USA.

**Lepidoptera del Monumento Nacional White Sands, Otero County, Nuevo México, EE.UU. 8.
Descripción de la hembra de *Protopgyia whitesandsensis* Metzler & Forbes, 2009
(Lepidoptera: Noctuidae, Agrotini)**

Resumen

Protopgyia whitesandsensis Metzler & Forbes, 2009 fue descrita de una serie de 18 machos. En marzo de 2010 una sola hembra fue capturada y se describe aquí. Se ilustran el imago de la hembra y su genitalia.

PALABRAS CLAVE: Lepidoptera, Noctuidae, Agrotini, *Protopgyia whitesandsensis*, hembra, EE.UU.

Introduction

The purposes of this paper are to illustrate and describe the female of *Protopgyia whitesandsensis* Metzler & Forbes, 2009. In late 2006 the U. S. National Park Service invited me to conduct a study of moths in White Sands National Monument. The first moth species I found in the winter of 2006-2007 was undescribed, and I named it *P. whitesandsensis*, which means “comes from White Sands”. The type series consisted of 18 males. A single female of *P. whitesandsensis* was collected by Gregory Forbes on 18-III-2010. This paper is a description of that specimen, the only known female specimen. This paper ensures that a proper description of the female is in the literature.

This is the 13th paper pertinent to new species of moths emanating from my study. (METZLER 2014a, 2014b, 2016; METZLER & LANDRY 2016; METZLER *et al.*, 2009, 2016; METZLER & FORBES 2011b, 2011c; METZLER & LIGHTFOOT 2014; WRIGHT 2012, 2014; WRIGHT & GILLIGAN 2015).

Materials and methods

A complete description of the study site is given in METZLER *et al.* (2009). All specimens of *P.*

whitesandsensis were collected at black light traps (see SMITH *et al.*, 1964) or at black light and sheet as illustrated in COVELL (1984). The female described here was collected at black light and sheet. The specimen was spread and labelled. The abdomen was removed, dipped in 95% ethanol, and soaked in 10% KOH for 30 minutes at 50° C. The pelt was cleaned following procedures outlined in CLARKE (1941) and HARDWICK (1950). The genitalia were stained with Safranin O in water and chlorazol black in water. The genitalia were dehydrated in 95% ethanol, cleared in clove oil, rinsed in xylene, and slide mounted in Canada balsam.

The fore wing length was measured from base to apex (excluding fringe) using a Leica MZ 12 stereo-microscope with a Wild 15× ocular micrometer.

The photograph of the adult was taken with a Nikon D7100 equipped with an AF-S Micro Nikkor 105 mm 1.28 GED lens and an Aristo DA-10 light-box. The photograph of the genitalia was taken with a Nikon D7100 digital camera mounted on a Leitz Aristophot, a 12 centimeter Summar objective, and an 80 mm condenser. The images were processed with Photoshop CS6 software. The specimen described and illustrated here is deposited in The Arthropod Collection at New Mexico State University, Las Cruces, New Mexico.

Diagnosis

The female of *P. whitesandsensis* is externally very similar to the male. The female is distinguished by being slightly darker than the male, especially the hind wings, and the filiform antennae. The cream-colored sub-costal streak on the fore wing of the female is 0.8× as long and 0.9× as wide as the same marking on the male. The fore wing of the female of *P. whitesandsensis* is dark silvery gray without the normal transverse lines present on most noctuid moths. The veins are lined with contrasting cream white from approximately the end of the cell to the outer margin creating a narrow fan-like appearance. The fore wings of two similar species, *P. pectinata* Lafontaine, 2004 and *P. polingi* Barnes & Benjamin, 1922 are tan colored in comparison with the dark gray of *P. whitesandsensis*. Of these three species, only *P. whitesandsensis* has the contrasting cream-colored sub-costal streak. The female genitalia of *P. whitesandsensis* are characterized by the sclerotization and the shape of ductus bursae and the shape of the appendix bursae. The ductus bursae of *P. whitesandsensis* is well sclerotized and narrowed by 50% approximately midway between the ostium bursae and the corpus bursae, and posterior end of the corpus bursae is rugose. The ductus bursae of *P. polingi* is lightly sclerotized and bulges midway between the ostium bursae and the corpus bursae, and the posterior end of the corpus bursae is not rugose. The lightly sclerotized ductus bursae of *P. pectinata* is narrowed by 25% midway between the ostium bursae and the corpus bursae. The posterior end of the corpus bursae is not rugose. The robust, ovoid appendix bursae of *P. whitesandsensis* is not elongated, and it extends away from the corpus bursae at a 90° angle. The appendix bursae of *P. polingi*, and *P. pectinata* are elongated and are closely parallel to the corpus bursae.

Protygyia whitesandsensis Metzler & Forbes, 2009

Description: Adult female (Fig. 1a): Thorax, scales erect, hair-like, silvery gray, 25% of scales with black tips; front scales rough, semierect, directed mesially, silver, 25% of scales with black tips. Labial palpus gray, silver ventrally and dorsally with shaggy long hair-like scales, laterally and mesially less shaggy, apical segment short directed anteriorly, roughly scaled, silvery gray, hidden by shaggy scales of second segment. Antennae filiform, white scales appressed dorsally, ventrally naked, short setae directed ventrally, one per segment. Thorax: dorsum silver and gray, scales erect, fur-like; five black stripes from just behind collar to abdomen. One stripe mid-dorsum, two lateral stripes midway between dorsum and base of wings, two stripes just above base of wings; underside gray and dirty white, shaggy with long erect hair-like scales; legs dirty white ventral surface, scales appressed, dorsal surface shaggy with long hair-like scales; tarsomeres dirty white semi-erect scales, each tarsomere ringed with black apically. Forewing: length 17 mm, mean 17 mm, n = 1. Dark silver gray, streaked appearance, normal transverse lines missing; contrasting sub-costal white streak from base to end of

cell; black basal dash to end of cell, inconspicuous, vein Cu marked with white, more conspicuous towards end of cell. Veins from end of cell to outer margin lined with white, subterminal shade marked with vague black patches. Oblique shade, obscure, tan from end of cell to apex; fringe silver and dark gray. Hind wing silvery white with densely scattered dark gray scales; broad dark U-shape over cell. Underside: fore wing dark silvery gray; markings from upper side vaguely repeated; hind wing silvery white, scattered dark gray scales, discal spot at end of cell contrasting dark. Abdomen not noted before removal for dissection.

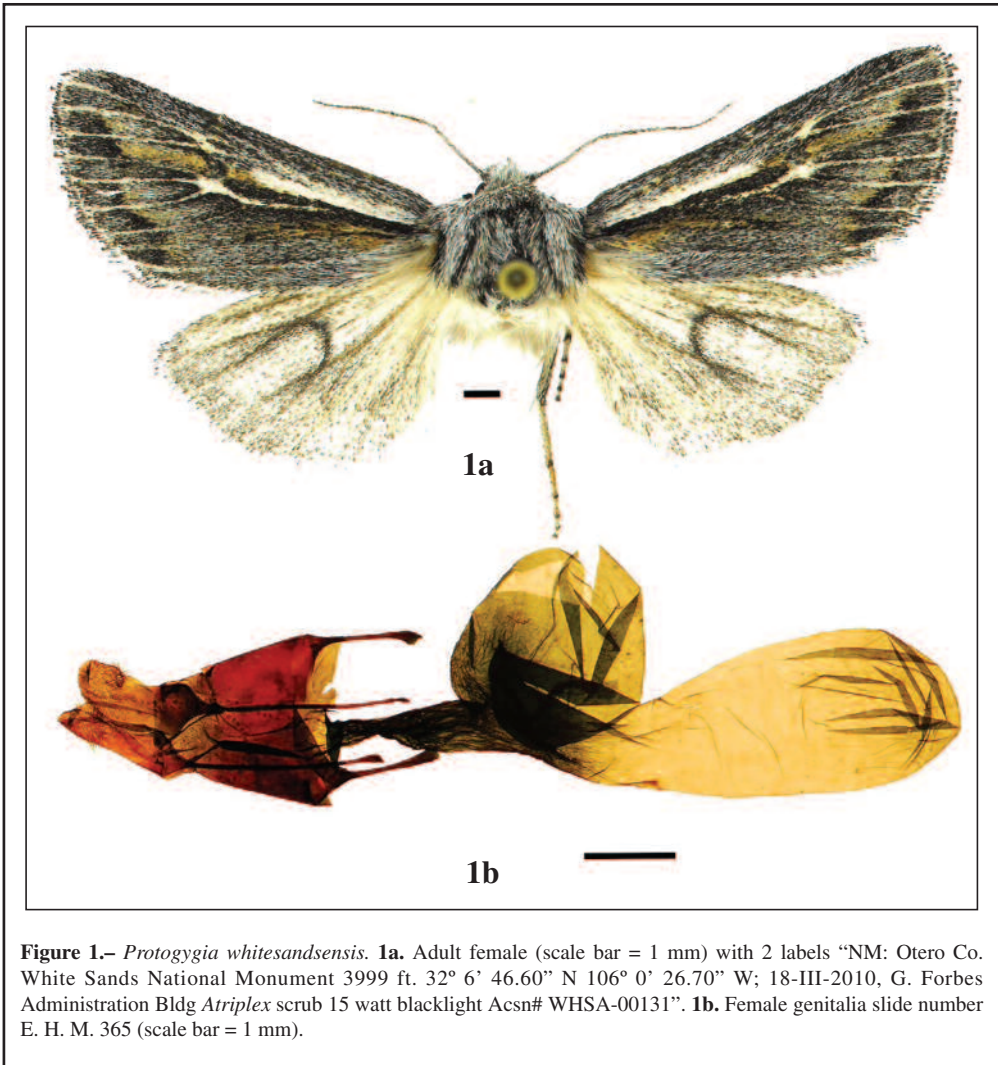


Figure 1.– *Protogygia whitesandsensis*. **1a.** Adult female (scale bar = 1 mm) with 2 labels “NM: Otero Co. White Sands National Monument 3999 ft. 32° 6’ 46.60” N 106° 0’ 26.70” W; 18-III-2010, G. Forbes Administration Bldg *Atriplex* scrub 15 watt blacklight Acsn# WHSA-00131”. **1b.** Female genitalia slide number E. H. M. 365 (scale bar = 1 mm).

Genitalia (one preparation examined): (fig. 1b): Papillae anales sclerotized, flattened, separate at apex, apex curved and rounded like a finger nail, numerous stiff setae laterally; posterior apophysis broad posteriorly, sharply narrowed and flattened, anterior end widened to 2.0× width, extends to 0.5× length of ductus bursae; anterior apophysis flattened, length = 0.28× length posterior apophysis, apex

widened 3.0×, slightly turned mesially, apex acute; ductus bursae sclerotized, robustly rugose, narrowed to 0.5× width at 0.33× from posterior end, widened to 2.0× of narrowest part at anterior end; appendix bursae prominent, ovate, produced from posterior end of corpus bursae, 90° to axis of ductus bursae and corpus bursae, rugose at base, without other structures; corpus bursae elongate, rugose at juncture with ductus bursae and appendix bursae, apparent signum is one sclerotized marking just cephalad of junction of corpus bursae and appendix bursae.

Remarks: The overall structure of the female genitalia is in agreement with the other females in the *album* group defined by LAFONTAINE & FAUSKE (2004).

Acknowledgments

Three non-profit organizations contributed funding for travel and logistics in support of this study of Lepidoptera at WHSA. I am especially grateful for the substantial financial support of The Western National Parks Association, Tucson, Arizona. The El Paso Zoo Conservation Committee, El Paso, Texas, and the Association of Zoos and Aquariums' Terrestrial Invertebrate Taxon Advisory Group (TITAG), Seattle, Washington also contributed grants. Their commitment to this research is rewarding. Several executives, including David Bustos, Cliff Spencer, and Diane White, from WHSA were instrumental in initiating and promoting this study of the moths. I single out David Bustos, for his enthusiastic support and for getting things done. The National Park Service provided permits to take samples of moths and provided access to areas normally closed to the public. C. Scott Bundy, Director, and Jennifer Shaughney, Curator, from The Arthropod Collection at New Mexico State University, Las Cruces, NM graciously made the specimen and genital slide available for study. Patricia A. Metzler faithfully assisted me on many aspects of this study, and she provided funding. Antonio Vives graciously provided the Spanish abstract. I thank Marie Frias-Sauter, J. Donald Lafontaine, and anonymous reviewers for reading the paper and offering valuable suggestions.

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(Recibido para publicación / Received for publication 12-V-2016)
(Revisado y aceptado / Revised and accepted 10-XI-2016)
(Publicado / Published 30-VI-2017)